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Android Brand Health

June 2020 Report

go/android-brandpulse

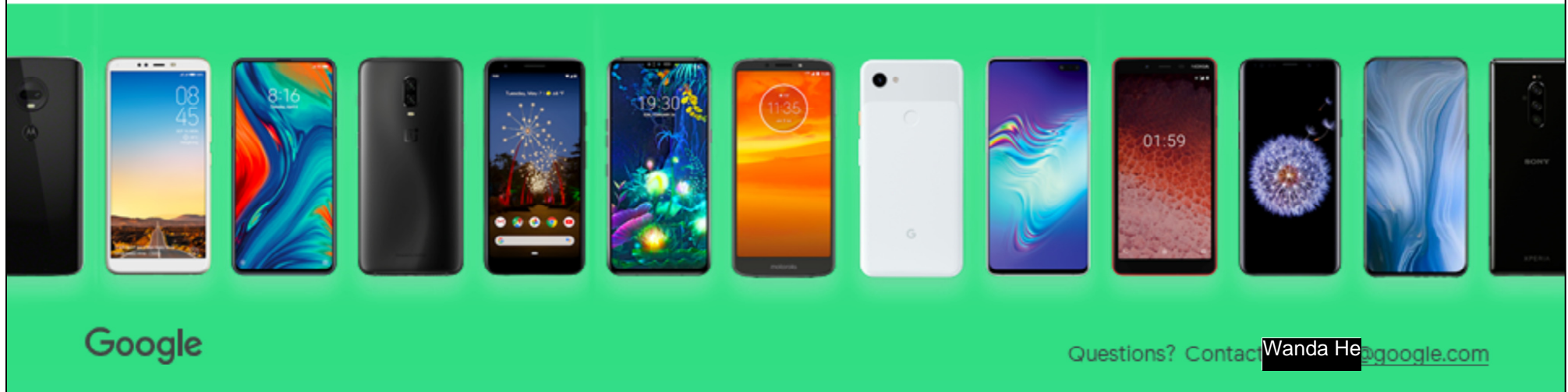


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EXHIBIT 1768.R-001

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Executive Summary

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If you remember nothing else

- **There's an ownership bias.** Owners prefer their devices to the alternative — and plan to stick with them.
- **Android works well with Google.** iOS is seen as fast and high quality, while Android is believed to work well with Google apps. But most Android owners don't know Google makes Android.
- **Less trusted than iOS.** Android is less likely to be trusted than iOS and is less likely to be seen as secure.
- **Apps are a cause for security concerns** — and among Android owners, Android outperforms Google Play on all key metrics.

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Study Background

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Objectives

Monitor the overall brand health and funnel metrics of Android and competitor iOS



Target market

US n=2,000 per quarter



Respondent criteria

Internet users ages 16-70 who must have some knowledge of smartphone operating systems



Markets

US, UK, FR, JP, KR

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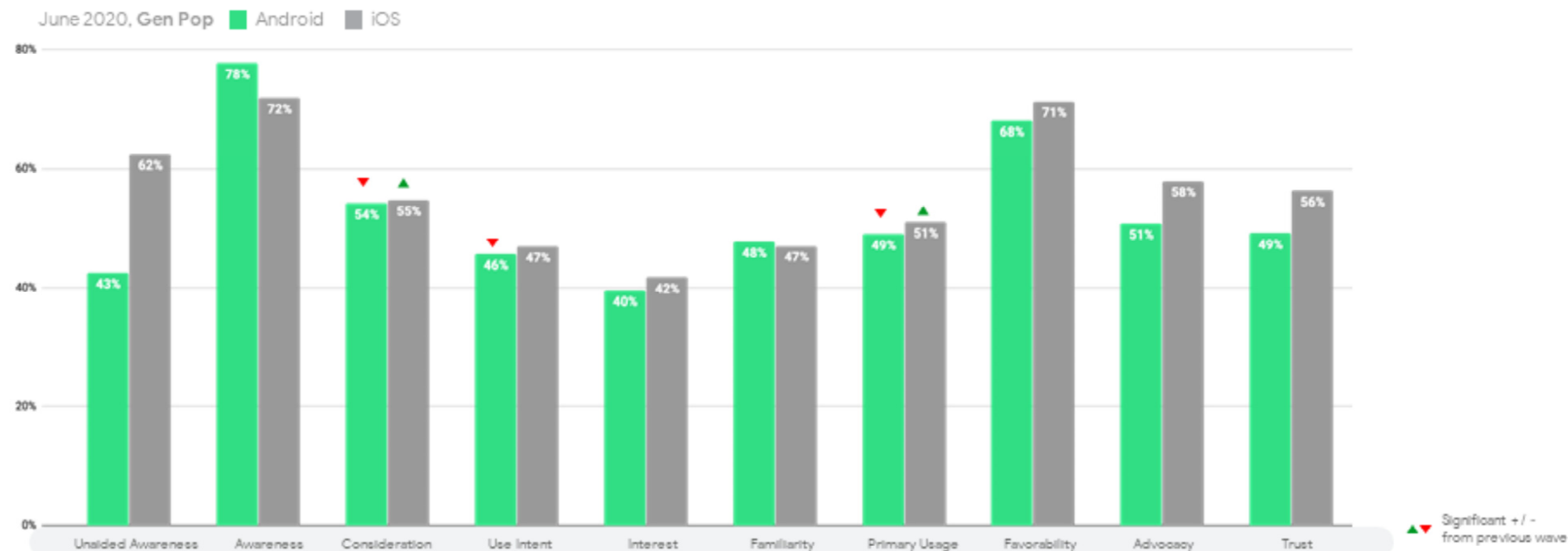
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Awareness & engagement funnel: Gen pop snapshot

Android has higher awareness among Gen Pop; however, **consideration and usage intent are declining WoW**. iOS leads across most metrics, including advocacy and trust.

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Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Unaided awareness question: "When you think about smartphone operating systems, what products or brands have you heard of?" Aided awareness question: "Which of the following smartphone operating systems have you heard of? Please select all that apply." Consideration question: "Including any you might already use, which of the following smartphone operating systems would you consider using in the future?" Purchase / Use Intent question: "Which one of the following smartphone operating systems would you most likely choose?" Interest question: "How interested would you be to learn more about each of the following smartphone operating systems?" Familiarity question: "How much do you know about each of the following smartphone operating systems?" Favorability question: "Which best describes how you feel about each of the following smartphone operating systems?" Advocacy question: "Which statement best reflects your overall opinion and perceptions towards each brand?" Trust question: "Overall, how much do you trust [Android/iOS]?"

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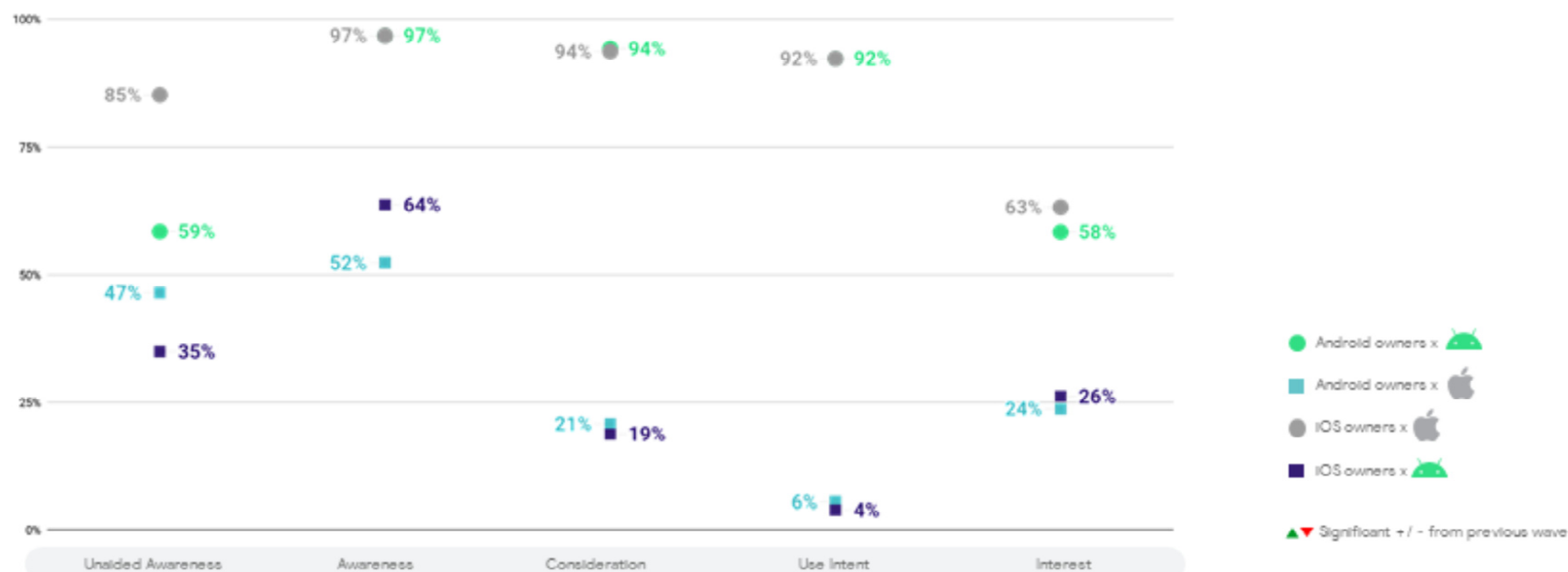
Awareness Funnel: Deep dive by ownership

With a closer look by ownership: while owners may consider the other OS, **the intent to use another OS is incredibly low**, potentially driven by high switching costs and/or loyalty to their existing OS.

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June 2020, by OS Ownership



Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Unaided awareness question: "When you think about smartphone operating systems, what products or brands have you heard of?" Aided awareness question: "Which of the following smartphone operating systems have you heard of? Please select all that apply." Consideration question: "Including any you might already use, which of the following smartphone operating systems would you consider using in the future?" Purchase / Use Intent question: "Which one of the following smartphone operating systems would you most likely choose?" Interest question: "How interested would you be to learn more about each of the following smartphone operating systems?"

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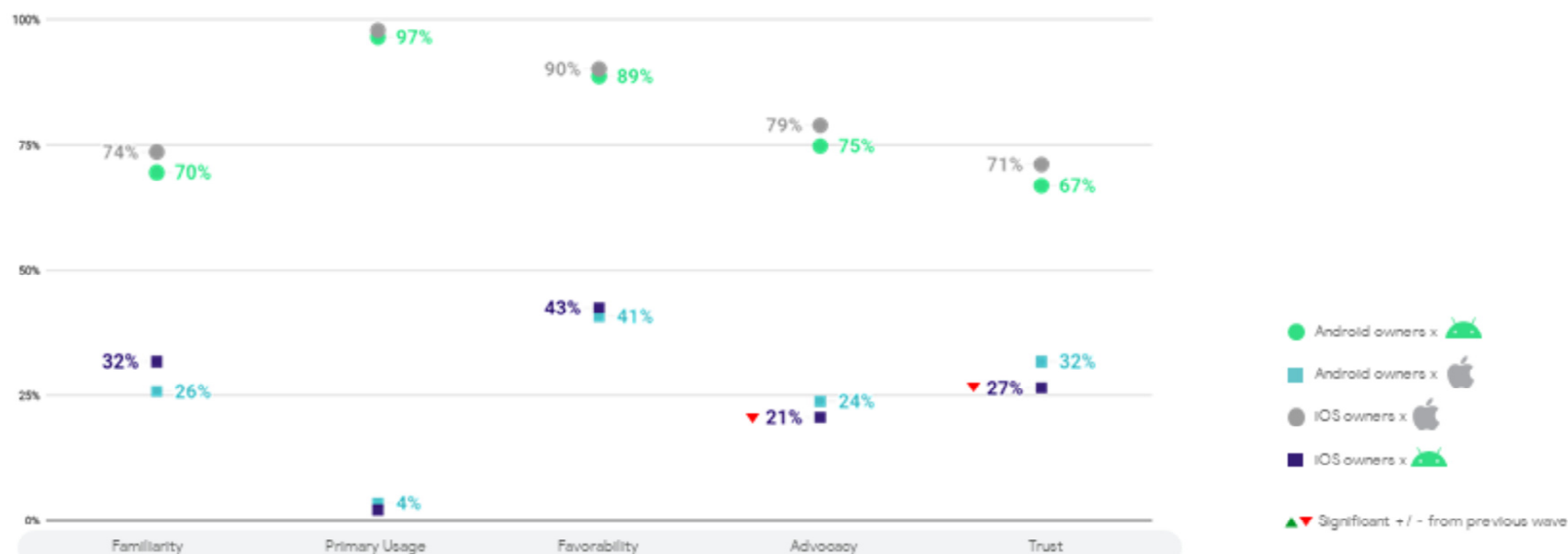
Perception & Engagement Funnel: Deep dive by ownership

Continuing to look at engagement by ownership, the story is consistent: **Android owners are slightly less likely to trust and advocate for their OS** compared to iOS owners, while trust of Android has declined among iOS owners.

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June 2020, by OS Ownership



Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. **Familiarity question:** "How much do you know about each of the following smartphone operating systems?" **Favorability question:** "Which best describes how you feel about each of the following smartphone operating systems?" **Advocacy question:** "Which statement best reflects your overall opinion and perceptions towards each brand?" **Trust question:** "Overall, how much do you trust [Android/iOS]?"

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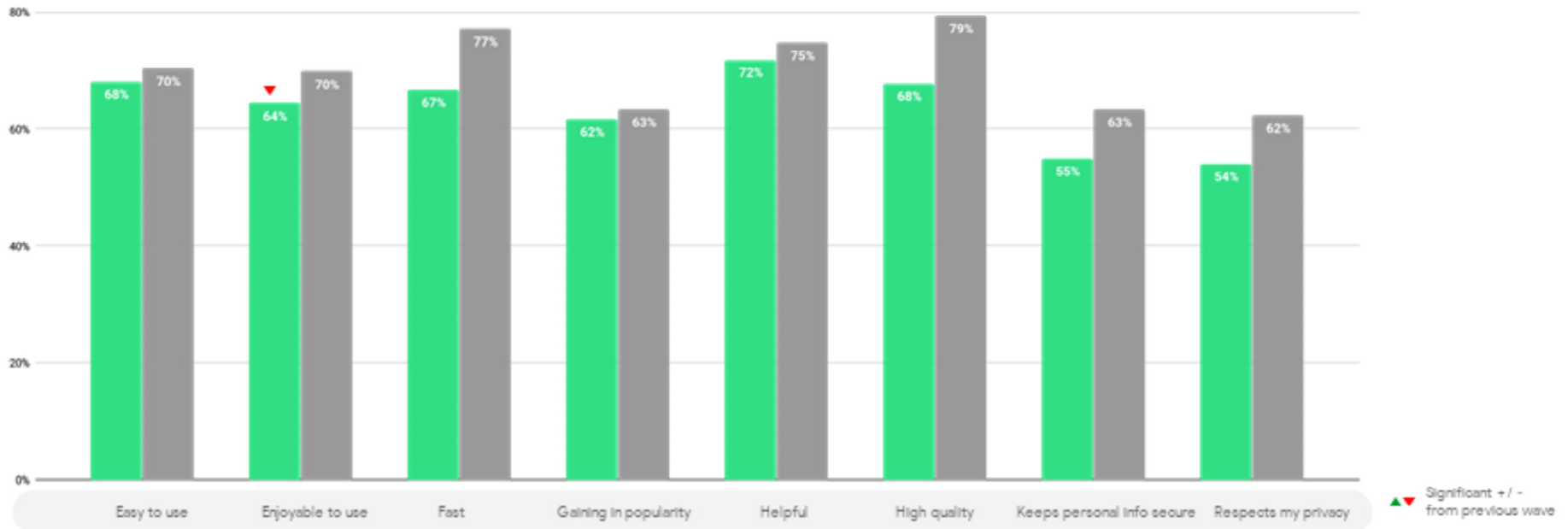
Standard Attributes: Category snapshot

Across key attributes, more **Gen Pop** respondents see iOS as **fast** (+10 ppts), **high quality** (+11 ppts), **secure** (+8 ppts), and **respects my privacy** (+8 ppts) versus Android.

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June 2020, Gen Pop ■ Android ■ iOS



Google

Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Attributes question: "Which of the following smartphone operating systems would you describe as...?"

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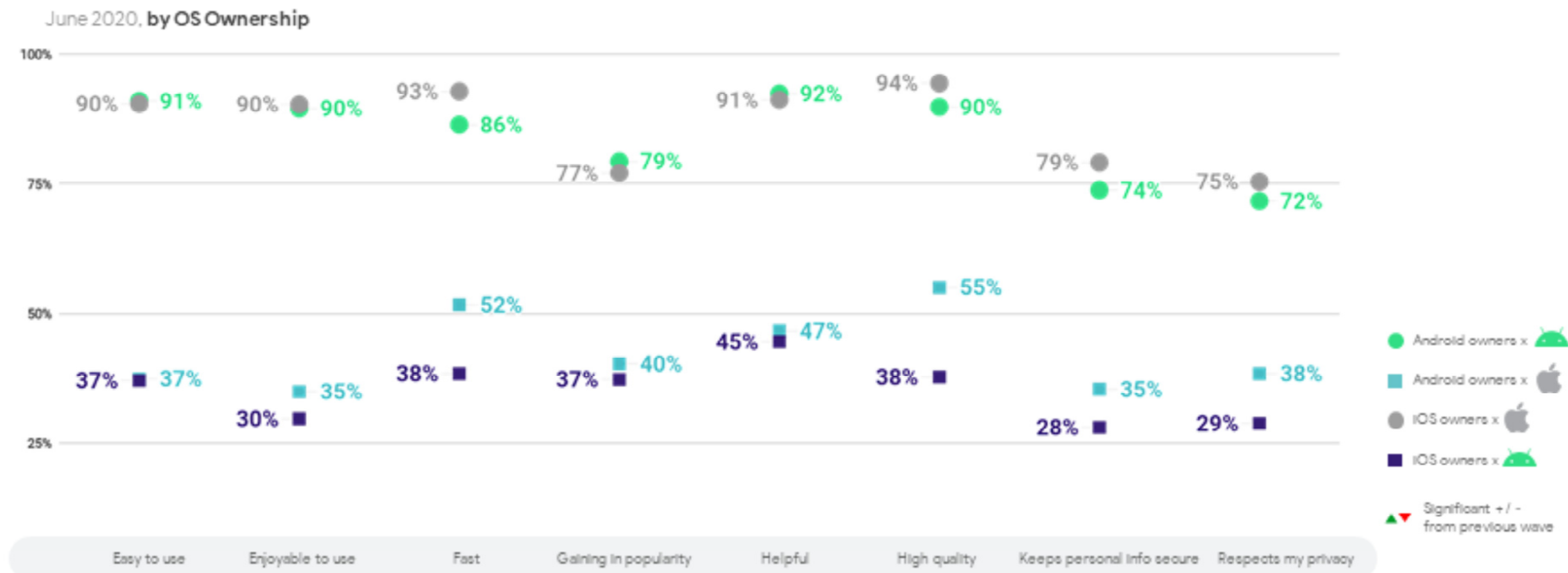
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Standard Attributes: Deep dive of OS perceptions by ownership

Exploring these attributes by ownership, Android and iOS are at parity for owners across: **ease & enjoyment of use, and helpful**, but **Android owners are more likely to say iOS is fast and high quality** than vice versa.

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Google

Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Attributes question: "Which of the following smartphone operating systems would you describe as...?"

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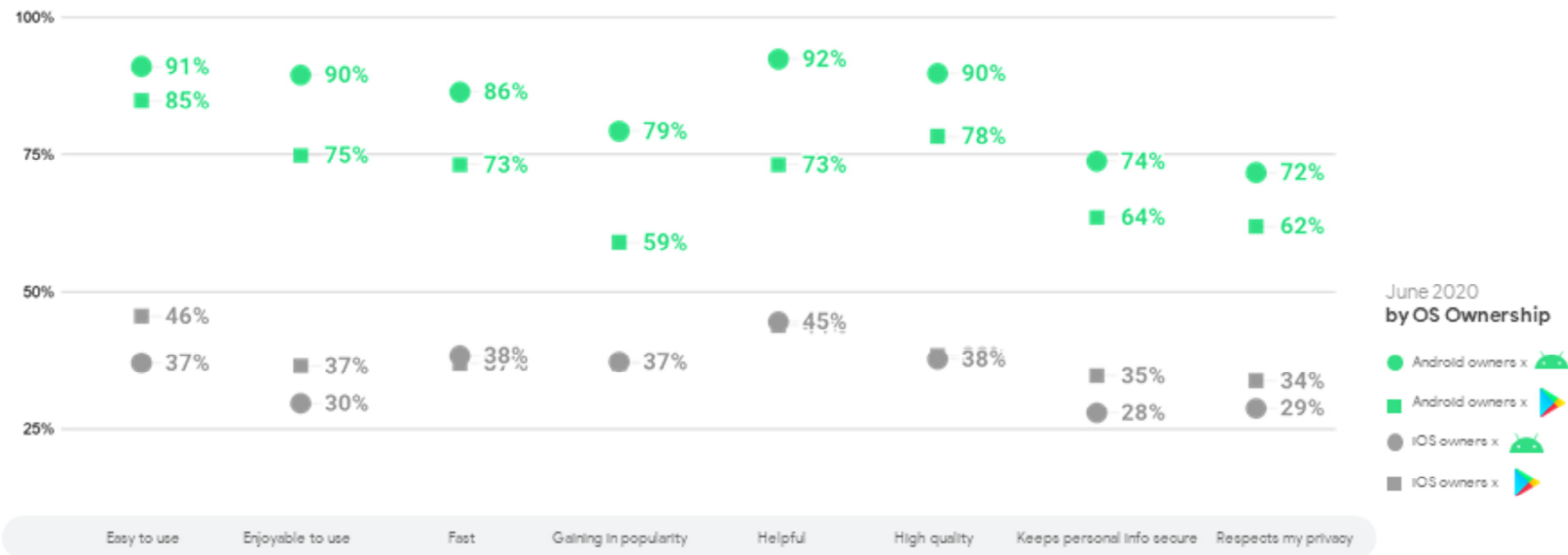
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Standard Attributes: Deep dive across Android & Google Play

Comparing these key attributes between Android and Google Play, **Android owners consistently say Android outperforms Google Play**, while iOS owners see Android and Google Play performing at parity. This gap for Android owners may warrant further exploration to understand potential impact.

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Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Attributes question: "Which of the following smartphone operating systems would you describe as...?"

- iOS owner perception of Play & Android are very close.

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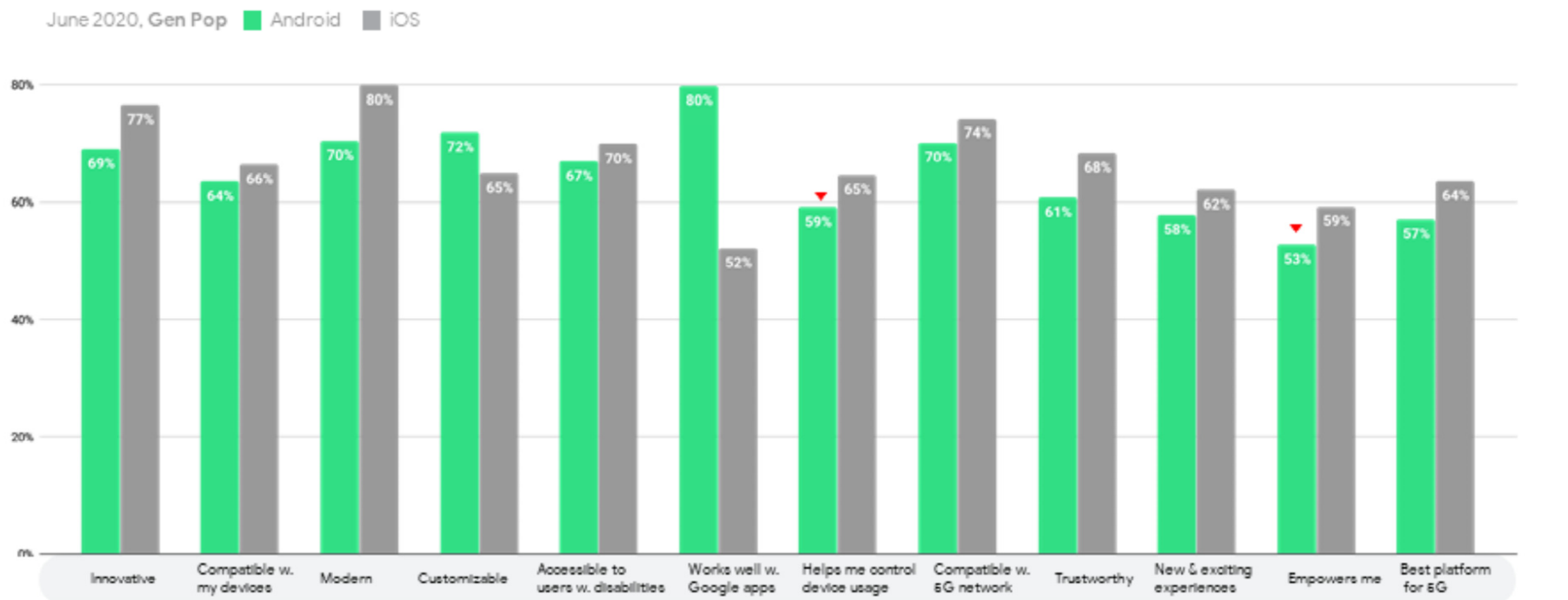
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Custom Attributes: Category snapshot

Across category-specific attributes, **Gen Pop** says **Android** is customizable and works well with **Google apps** while **iOS** is seen as more innovative and modern.

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▲ ▼ Significant +/- from previous wave

Google

Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Attributes question: "Which of the following smartphone operating systems would you describe as...?"

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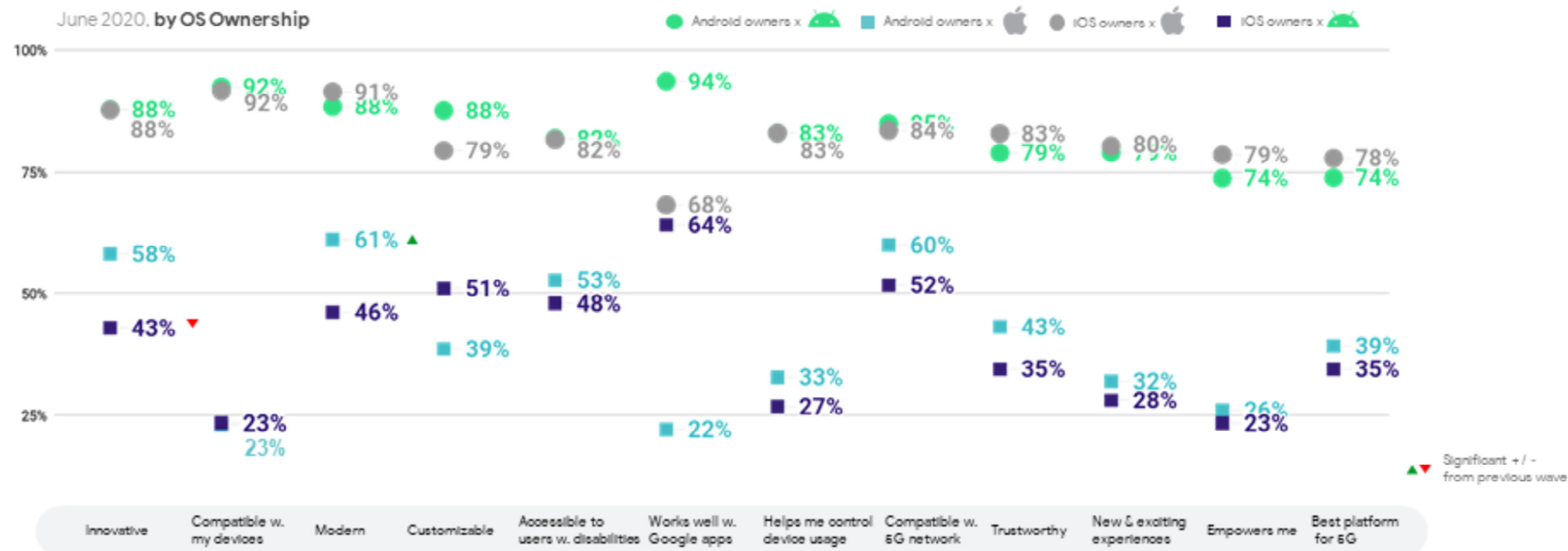
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Custom Attributes: Deep dive of OS perceptions by ownership

Looking at these attributes by ownership: while the majority of owners say both operating systems are compatible with 5G, **only their OS is the best platform for 5G**. And, reinforcing switching costs, **owners say their OS is compatible with their devices but other is not**.

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Google

Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Attributes question: "Which of the following smartphone operating systems would you describe as...?"

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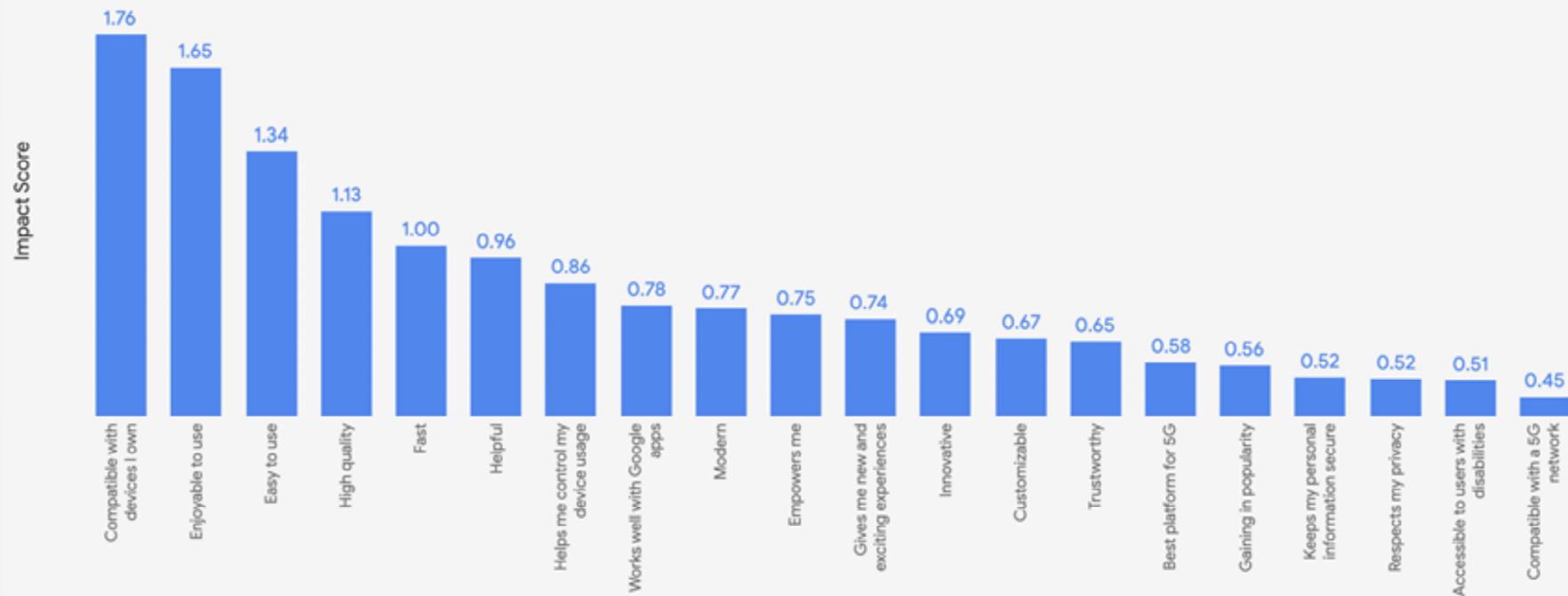
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Drivers Analysis: Likelihood to use Android (Gen Pop)

Across all attributes, **compatibility, enjoyment, ease of use, high quality, and fast** are most likely to influence the use of Android devices.

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Google

Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Attributes question: "Which of the following smartphone operating systems would you describe as...?"

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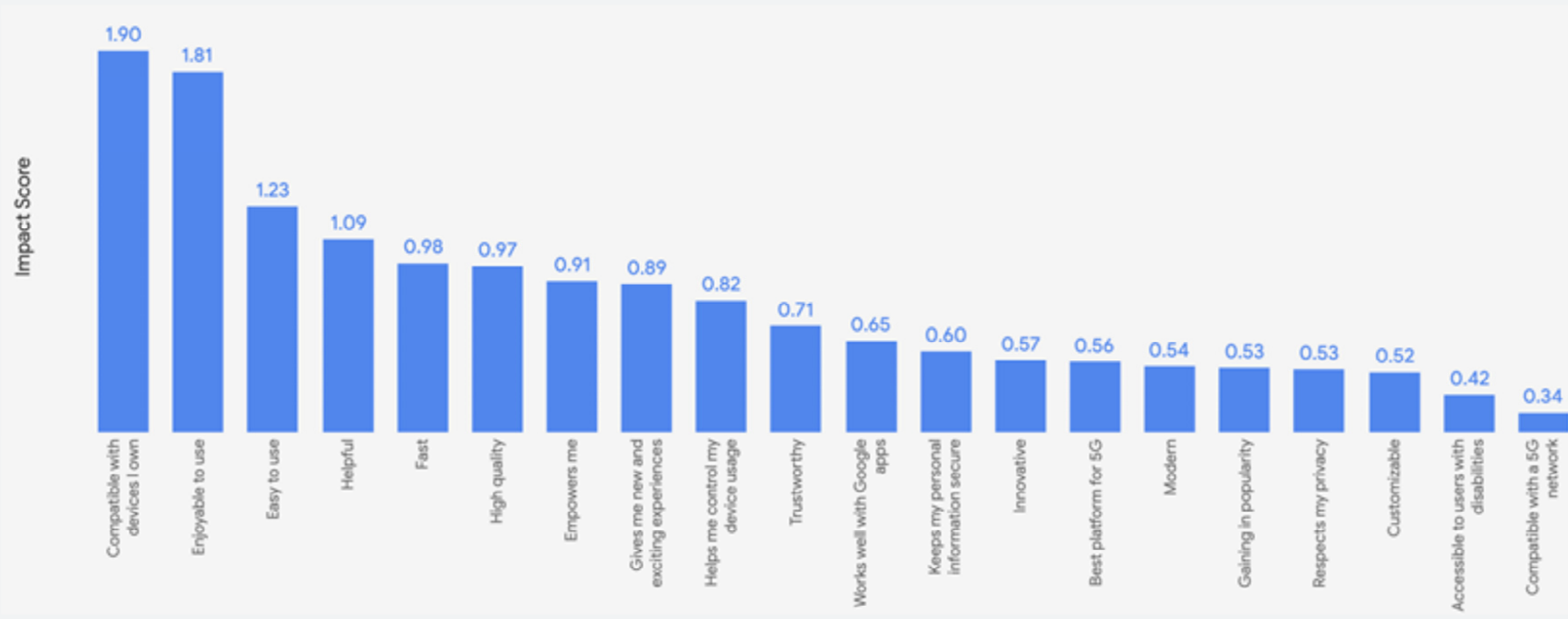
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Drivers Analysis: Likelihood to use iOS (Gen Pop)

Similarly, **compatibility**, **enjoyment**, **ease of use**, **helpful**, and **fast** are most likely to influence the use of iOS devices. Notably, iOS consistently outperforms Android on **fast** and **high quality** perceptions.

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Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Attributes question: "Which of the following smartphone operating systems would you describe as...?"

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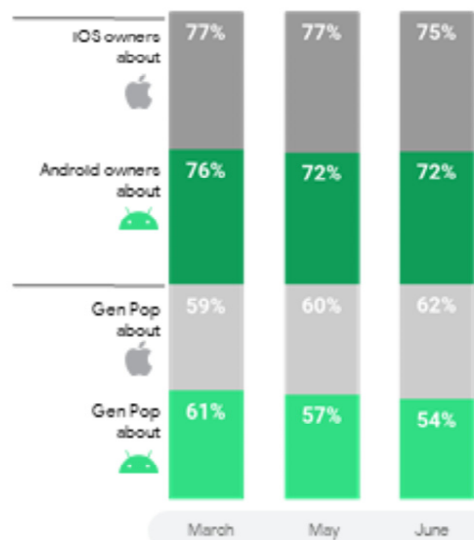
Privacy

An encouraging privacy story: by ownership, **Android is perceived to respect user's privacy (72%) almost at parity with iOS (75%)**. Concerns and uncertainty with how Android uses personal data are key drivers to a believed lack of privacy.

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Which phones respect my privacy?



Among those who **don't believe Android respects my privacy**, here are the top reasons why:

Gen Pop	Android Owners	June 2020 responses
22%	▲ 29%	I believe that Android sells my data
21%	26%	I have seen news stories about Android devices not protecting privacy
20%	▲ 28%	I don't understand how Android uses my mobile data
16%	18%	I believe apps on Android devices can access more data than apps on iPhone devices
14%	17%	I don't understand how my apps use my mobile data
13%	19%	I believe my data has been taken off my device without my permission
12%	7%	My family or friends say Android does not protect privacy
25%	24%	Other

▲ ▼ Significant + / - from previous wave

Google

Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Attributes question: "Which of the following smartphone operating systems would you describe as...?" Smartphone OS Android security question: "Why do you think Android devices do not respect your privacy?"

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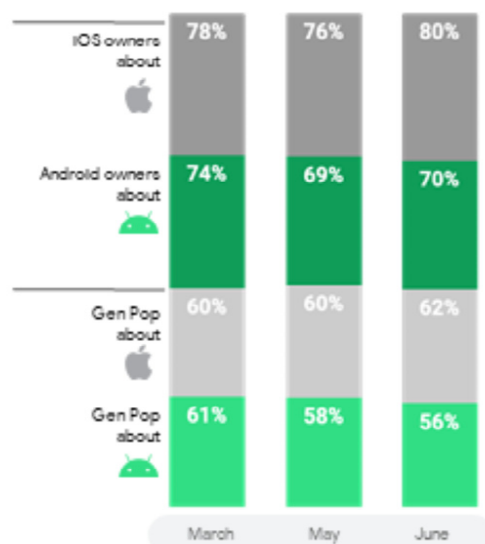
Security

But a concerning trend for security: as more iOS owners say their phone is secure, fewer Android owners say the same (quarterly delta increased from -4 ppts to -10 ppts). And **perceived lack of app security continues to rise among those who say Android isn't secure.**

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Which phones are secure?



Why people believe Android **isn't** secure

Gen Pop	Android Owners	June 2020 responses
21%	22%	I think some Android devices are secure, but others aren't
18%	▲ 26%	I think that apps downloaded from other app stores, messaging apps, or websites are not secure
15%	14%	I have seen news stories about Android devices not being secure
13%	10%	I know someone who has experienced malware on an Android device
13%	7%	I have heard that Android phones don't receive updates, so they're easier to hack
9%	▲ 13%	I think that apps downloaded from the Google Play Store are not secure
9%	8%	I have experienced malware on an Android device
8%	3%	My family or friends say Android is not secure
33%	36%	Other

▲ ▼ Significant +/- from previous wave

Google

Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Smartphone OS perceptions question: "How much do you agree or disagree with each of the following statements?" Smartphone OS Android security question: "Why do you think Android devices are not secure?"

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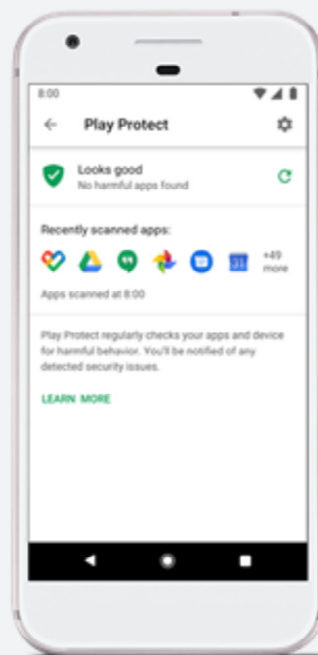
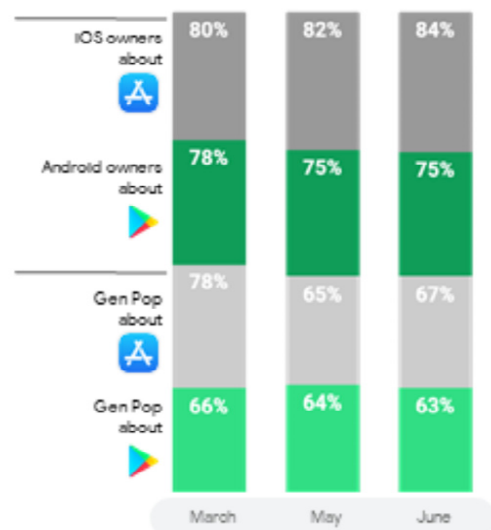
Safety & App stores

The trend continues to play out in owner's perceptions of their own app store's safety. That said, **75% of Android Owners say Google Play is a safe place to get apps** even while **less than half are aware of Google Play Protect**.

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Which store is a safe place to get apps?



Have you ever heard of or seen Google Play Protect before today?

% Aware	March	May	June
Gen Pop	43%	39%	37%
Android Owners	53%	49%	46%



Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Smartphone OS perceptions question: "How much do you agree or disagree with each of the following statements?" Smartphone OS Google Play Protect Aware question: "Google Play Protect is built-in security protections for all certified Android phones. Have you ever heard of or seen Google Play Protect before today?"

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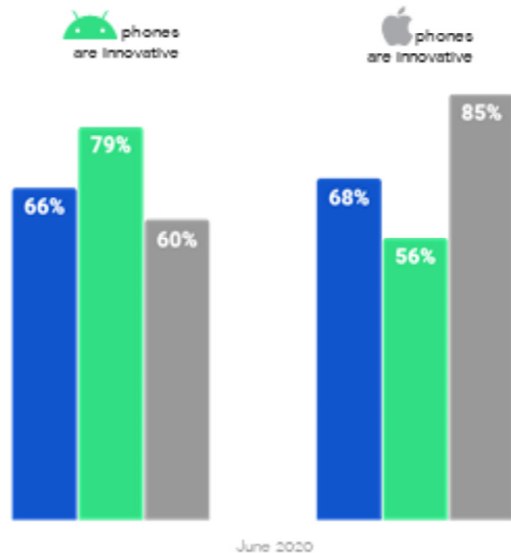
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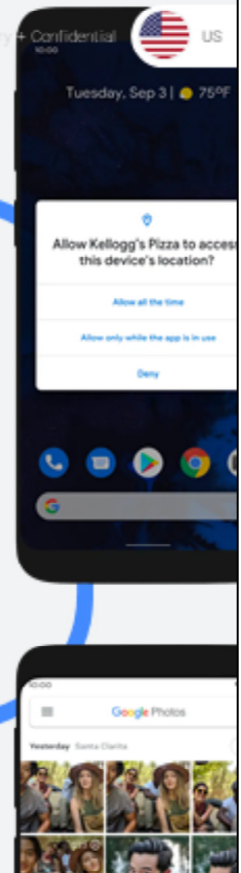
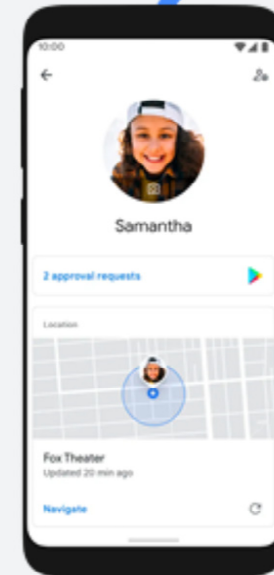
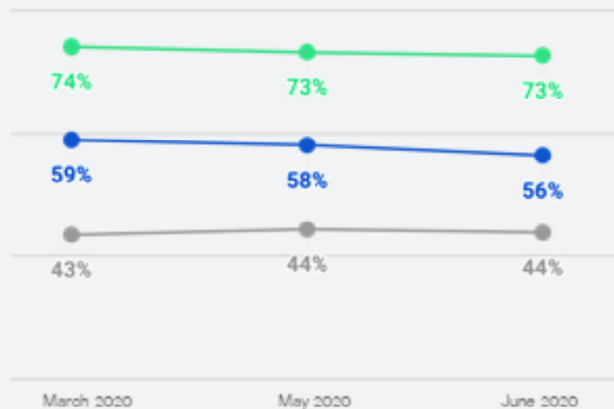
Innovation

Among Gen Pop, Android and iOS are seen as equally innovative (66%, 68%). And there's early stability in the perception that 'Android devices are empowering the world.'

Android Owners iOS Owners Gen Pop



Android devices are empowering the world.
They put the best technology innovations into users' hands.



Google

Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. Smartphone OS perceptions question: "How much do you agree or disagree with each of the following statements?" Smartphone OS empowering question: "How much do you agree or disagree with the following statement? 'Android devices are empowering the world. They put the best technology innovations into users' hands.'"

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Operating System Developer

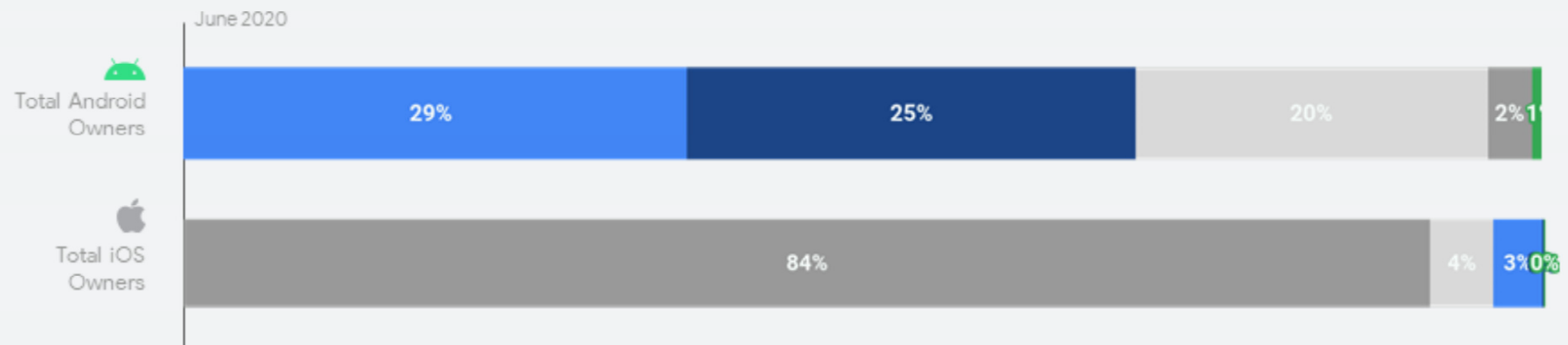
Consistent with earlier waves, **less than one-third of Android owners correctly identified Google as the developer of Android** (versus 84% of iOS owners who correctly identified Apple as their smartphone OS developer).

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Who developed the Operating System that runs on your smartphone?

Google Apple Samsung Other I don't know



Google

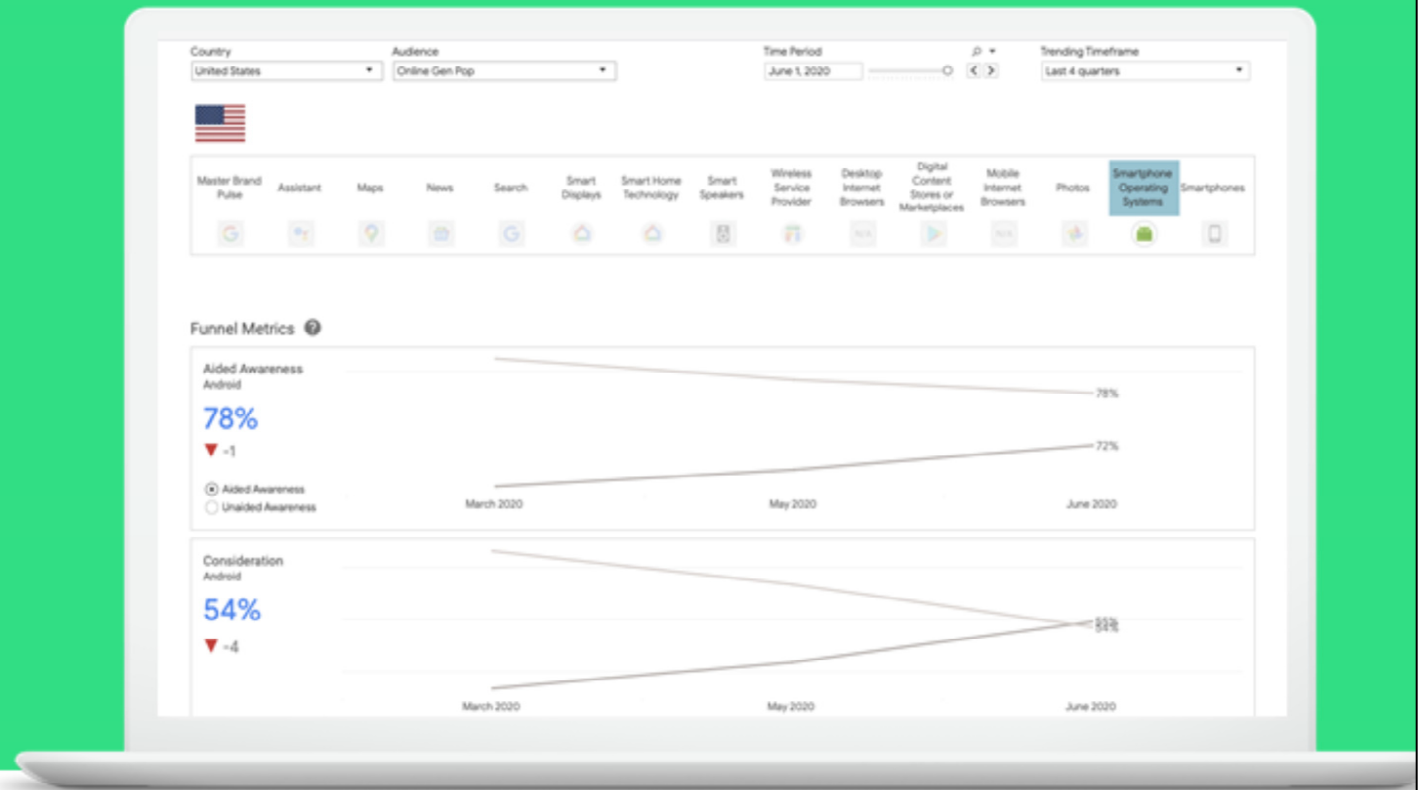
Source: Ipsos Brand Pulse Questionnaire, Smartphone Operating Systems. **Maker of your OS question:** "Who develops the operating system that runs on your smartphone?"

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Brand Pulse
Dashboard
for more at [go/il-
tracking](https://go/il-tracking)



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Brand Pulse Questions

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Standard questions & attributes

Unaided Awareness: When you think about [Smartphone Operating Systems], what products or brands have you heard of?

Aided Awareness: Which of the following [Smartphone Operating Systems] have you heard of? Please select all that apply.

Familiarity: How much do you know about each of the following [Smartphone Operating Systems]?

Interest: How interested would you be to learn more about each of the following [Product]?

Consideration: Including any you might already use, which of the following [Product] would you consider using in the future?

Use/Purchase Intent: Which one of the following [Product] would you most likely choose?

Favorability: Which best describes how you feel about each of the following [Product]?

Advocacy: Which statement best reflects your overall opinion and perceptions towards each brand?

Trust: Overall, how much do you trust [PIPE IN BRAND]?

Primary Usage: Which of these [Product] that you use are your primary?

Which of the following [Product] would you describe as...?

Helpful

Fast

Enjoyable to use

Easy to use

Respects my privacy

High quality

Keeps my personal information secure

Gaining in popularity

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Brand Pulse Questions

Custom attributes & module

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Which of the following [Product] would you describe as...?

- Innovative
- Compatible with devices I own
- Modern
- Customizable
- Accessible to users with disabilities
- Works well with Google apps
- Helps me control my device usage
- Compatible with a 5G network
- Trustworthy
- Gives me new and exciting experiences
- Empowers me
- Best platform for 5G

How much do you agree or disagree with the following statement?

Android phones are secure.**Apple iPhones are secure.**

How much do you agree or disagree with the following statement?

The Google Play Store is a safe place to get apps.**The Apple App Store is a safe place to get apps.**

How much do you agree or disagree with the following statement?

Google Play Protect is built-in security protections for all certified Android phones. Have you ever heard of or seen Google Play Protect before today?

How much do you agree or disagree with the following statement? **Android devices are empowering the world. They put the best technology innovations into users' hands.**

[For those who answered 'not secure'] **Why do you think Android devices are not secure?**

[For those who do not agree 'protects my privacy'] **Why do you think Android devices do not protect your privacy?**

Who developed the Operating System that runs on your smartphone?

How much do you agree or disagree with each of the following statements?

Android phones are innovative**Apple iPhones are innovative**

How much do you agree or disagree with each of the following statements?

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